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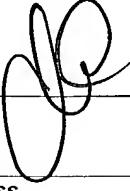
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/618,547	07/11/2003	Chao A. Zhang	10541-1801	5172
7590	05/17/2004		EXAMINER	
John M. Card, Esq. BRINKS HOFER GILSON & LIONE P.O. Box 10395 Chicago, IL 60610			LEO, LEONARD R	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 05/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/618,547	ZHANG, CHAO A. 
Examiner	Art Unit	
Leonard R. Leo	3753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on ____.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) Claim(s) ____ is/are allowed.
- 6) Claim(s) 1-6, 11-12 is/are rejected.
- 7) Claim(s) 7-10 is/are objected to.
- 8) Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on ____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. ____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>7/11/03</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "the angle" in line 1. There is insufficient antecedent basis for this limitation in the claim. The claim is believed to depend on claim 5.

Claim 8 recites the limitation "the base and the length" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. The claim is believed to depend on claim 7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsutsui.

Claims 1, 3 and 5-6 are rejected under 35 U.S.C. 102(b) as being anticipated by Stoynoff.

Regarding claim 6, as permissibly gleaned from Figure 2c, the angle is about 40 degrees.

Claims 1, 3 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Park et al (Figure 11e).

Claims 1 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Kido et al.

In the rejections above, the recitation of "for a vehicle" is considered to be a statement of intended use, even if claimed, does not merit patentable weight unless the body of the claim refers back to, is defined by, or otherwise draws life and breadth from such intended use. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 4 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stoynoff or Park et al.

Stoynoff or Park et al discloses all the claimed limitations except the proportion of vortex generator louvers to non-vortex generator louvers.

To employ any number of vortex generator louvers is considered to be an obvious design expedient, producing no new and/or unexpected results and solving no stated problem. One of ordinary skill in the art would employ any number of vortex generator louvers for the purpose of achieving a desired pressure drop and heat exchange.

Regarding claim 4, one of ordinary skill in the art would employ any spacing between mini-vortex generators for the purpose of achieving a desired pressure drop and heat exchange.

Regarding claims 11-12, the specific dimensions of the louvers is considered to be an obvious design expedient, producing no new and/or unexpected results and solving no stated

problem. One of ordinary skill in the art would employ an louver dimension for the purpose of achieving a desired pressure drop and heat exchange.

Allowable Subject Matter

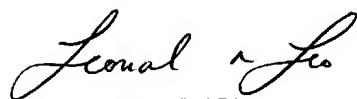
Claims 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648. Status of the application may also be obtained from the Internet: <http://pair.uspto.gov/cgi-bin/final/home.pl>

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.


LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

May 16, 2004